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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,818	01/05/2004	Koji Horisaki	247213US2	1633

22850   7590   01/18/2007

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EXAMINER
FLORES, LEON

ART UNIT	PAPER NUMBER
2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	10/750,818	HORISAKI, KOJI
	Examiner	Art Unit
	Leon Flores	2635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-19_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-19_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _4/01/2004_.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the .invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3-11, 13-15, & 17-19 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Health, Jr. et al. (US Patent 6,298,092), and in view of Yoshida (US

Patent 6,452,964 B1).

Re claim 1, Health, Jr. et al discloses a digital communication device (see Fig. 2),

comprising: a relative likelihood calculator which calculates a relative likelihood

expressing differences and ratios between the most probable likelihood among the

calculated likelihoods and the other likelihoods (see Fig. 5A. One of ordinary skill would

know that calculating the minimum Euclidean distance will yield the maximum likelihood

criterion.); and a transmission parameter deciding unit (see Fig. 3: element 66) which

decides a transmission parameter composed of at least one of modulation scheme, a

coding rate and a transmission power for a signal to be transmitted at next time, based

on the calculated relative likelihood (see col. 8, lines 3-43 & col. 9, lines 6-52, col. 10,

lines 36-42 & Fig. 4: element 106 & Fig. 5A.). But fails to specifically disclose a decoder

which calculates likelihoods indicative of probability in which a signal received from

another communication device corresponds to a plurality of signal sequences.

However, Yoshida does. (see Fig. 2: element 107 & col. 6, lines 31-37.)

Yoshida discloses an adaptive modulation method which estimate a modulation

level corresponding to the maximum likelihood value of all the likelihood values (or

functions) a the modulation level as a modulation level of the received signal.   The

maximum likelihood estimation can be used not only for an adaptation modulation

system, but also for a power adaptation and rate adaptation.

Taking the combined teaching of Health, Jr. et al and Yoshida <u>as a whole</u>, it

would have been obvious to one of ordinary skill in the art to have modify the system of

Health, Jr. et al in the manner as claimed and as taught by Yoshida, for the benefit of

calculating the estimating the squared error of the minimum value of distances.

Re claim 3, the combination of Health, Jr. et al and Yoshida further discloses

that, wherein said transmission parameter deciding unit includes: a modulation scheme

selector which selects the modulation scheme of the signal to be transmitted at next

time based on the calculated relative likelihood; a coding rate selector which selects the

coding rate of the signal to be transmitted at next time based on the calculated relative

likelihood; and a transmission power selector which selects the transmission power of

the signal to be transmitted at next time based on the calculated relative likelihood. (In

Yoshida, see col. 10, lines 1-6.)

Re claim 4, the combination of Health, Jr. et al and Yoshida further discloses

that, comprising a memory which stores result selected by said modulation scheme

selector, said coding rate selector and said transmission power selector wherein said

modulation scheme selector, said coding selector and said transmission power selector

switch the selected contents, and said memory updates the stored contents, when a

prescribed time is passed, or a prescribed condition is satisfied. (In Health, Jr. et al., see

Fig. 3: element 78 & col. 8, lines 3-43. & Fig. 2: element 40 & col. 6, lines 26-41.)

Re claim 5, the combination of Health, Jr. et al and Yoshida further discloses

that, further comprising: an encoder which codes a signal to be transmitted to the other

communication devices based on the coding rate selected by said coding rate selector;

and a modulator which modulates a signal coded by said encoder and transmits the

modulated signal with transmission power selected by said transmission power selector

based on the modulation scheme selected by said modulation scheme selector. (In

Health, Jr. et al., see Fig. 3: element 56)

Re claim 6, the combination of Health, Jr. et al and Yoshida further discloses that, further comprising a data converter which transmits a signal to be transmitted to the other communication device which has transmitted the received signal, including the transmission parameter decided by said transmission parameter deciding unit. (In Health, Jr. et al., see Fig. 5A: element 118 & 120)

Re claim 7, the combination of Health, Jr. et al and Yoshida further discloses that, further comprising a demodulator which demodulates the received signal transmitted from the other communication device (In Yoshida, see Fig. 2: element 107), wherein said decoder decides whether or not the signal demodulated by said demodulator corresponds to any of said plurality of signal sequences (In Yoshida, see Fig. 4 & col. 9, lines 11-35); and said relative likelihood calculator calculates the relative likelihood based on a result decoded by said decoder. (In Yoshida, see col. 9, lines 56-67)

Claims 8-11 & 15 have been analyzed and rejected in view of claim 1 above.

Claims 13 & 17 have been analyzed and rejected in view of claim 3 above.

Claims 14 & 18 have been analyzed and rejected in view of claim 4 above.

Re claim 19, the combination of Health, Jr. et al and Yoshida further discloses that, wherein said first and second communication channels have the same or similar transmission properties. (In Yoshida, see col. 5, lines 66-67 & col. 6, lines 1-3. Or in Health, Jr. et al, see col.6, lines 35-37)

Claims 2, 12, & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Health, Jr. et al. (US Patent 6,298,092), in view of Yoshida (US Patent 6,452,964 B1), and in further view of Yoshida (US Patent 6,359,934 B1).

Re claim 2, the combination of Health, Jr. et al and Yoshida fails to discloses that, wherein said transmission parameter deciding unit calculates the relative likelihood expressing a difference and a ratio between the most probable likelihood and at least one of an average value, a maximum value and a minimum value of the other likelihoods. However, a second reference belonging to Yoshida does. (see col. 15, lines 44-55 & col. 16, lines 20-23.   Furthermore, one of ordinary skill in the art would know that, when calculating the maximum likelihood criterion of received signals one have to also estimate the maximum and minimum likelihood value for each received signal. Otherwise, we would not be able to distinguish which of the received signal is the signal of interest.)

Claims 12 & 16 have been analyzed and rejected in view of claim 2 above.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on 571-270-1195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LF
December 8, 2006

VU LE
SUPERVISORY PATENT EXAMINER